

REMARKS/ARGUMENTS

I. Introduction:

Claims 19, 20, 21, 24, 25, and 26 are amended herein. Claims 15-18 and 30-34 are withdrawn from further consideration by the Examiner as being drawn to a non-elected invention. Claims 11 and 22 have previously been canceled. With entry of this amendment, claims 1-10, 12-14, 19-21, and 23-29 will be pending.

II. Restriction Requirement:

Applicants elect claims 1-10, 12-14, 19-21, and 23-29 (species 1) without traverse. Applicants note that claim 20, which was included by the Examiner in species 1, has been amended to depend from claim 15, which is in species 2.

III. Claim Objections:

Claims 21 and 24-26 have been amended to replace “sealing cap” with “sealing caps”, as requested by the Examiner.

IV. Claim Rejections Under 35 U.S.C. 112:

Claims 3-5 stand rejected under 35 U.S.C. 112 and the Examiner states that claim 21 produces embodiments which are not enabled by the disclosure. The specification discloses a first embodiment wherein the base member includes chamfered ridges which are formed from a material harder than the sealing plate (see, page 8, line 18 – page 9, line 2 of the specification). Claims 3-5 refer to this first embodiment. The specification also discloses a second embodiment wherein the chamfered ridges are formed in the sealing device, which is formed from a harder material than the base member (see, page 10, lines

6-9 of the specification). Claim 21 refers to this second embodiment and has been amended to clarify that the sealing device is formed from a material harder than the base. Accordingly, claims 3-5 are believed to meet the requirements of 35 U.S.C. 112.

With regard to the rejection of claims 6 and 19, claim 6 includes a cover positioned over the sealing device, wherein claim 19 includes a cover which forms the sealing device. Thus, claim 6 is directed to an embodiment with a sealing device, such as a sealing plate interposed between a cover and the base. Claim 19 is directed to a cover which has a surface positioned adjacent to the base and forms the sealing device. Claim 19 has been amended to clarify that the sealing device is defined by the cover.

Claim 20 has been amended to depend from claim 15, which includes a plurality of vessels. As amended, claim 20 is believed to comply with the requirements of 35 U.S.C. 112.

V. Claim Rejections Under 35 U.S.C. 102:

Claims 1, 3, 5-8, 13, 19-21, 23, 24, and 26-29 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,149,882 (Guan et al.) or U.S. Patent No. 6,395,552 (Borade et al.).

The present patent application is a continuation-in-part of U.S. Patent Application Serial No. 09/607,535, filed June 29, 2000, which is a divisional of U.S. Patent Application Serial No. 09/093,870, filed June 9, 1998, now issued as U.S. Patent No. 6,149,882 (Guan et al.). Applicants further note that the Borade et al. patent is a continuation-in-part of the Guan et al. patent.

Claim 1 is directed to an apparatus for use in parallel reaction of materials. The apparatus includes a base having a plurality of reaction wells and a sealing device positioned over the reaction wells for individually sealing each of the reaction wells. One of the sealing device and the base has chamfered ridges extending generally around a periphery of the reaction wells and the other of the sealing device and base has a metal

contact surface formed from a material softer than a material of the chamfered ridges to create a knife-edge seal between the sealing device and the base when the sealing device and the base are forced into contact with one another.

Support for claims 1, 3, 5-8, 13, 19, 21, 23, 24, and 26-29 is provided in the parent patent, Guan et al., at col. 9, line 45 – col. 12, line 12 (see also, Figs. 9, 10, and 12). Accordingly, neither the Guan et al. patent nor the Borade et al. patent are prior art with respect to these claims.

Applicants therefore request that the Examiner withdraw the above rejection.

VI. Claim Rejections Under 35 U.S.C. 103:

Claims 2, 4, 9, 12, 14, and 25 stand rejected under 35 U.S.C. 103(a) as being obvious over Guan et al. or Borade et al. in view of WO 98/36826 (Wendelbo et al.). Claims 1-10, 12, 13, 19-21, and 23-29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wendelbo et al. in view of U.S. Patent No. 5,224,658 (Smith) and/or U.S. Patent No. 6,602,714 (Tagge et al.) and/or JP 58035220 (Koga) and/or U.S. Patent No. 6,165,417 (Swierkowski).

Applicants respectfully submit that the Tagge et al. patent (claiming priority to a provisional application filed on Nov. 9, 1999), the Swierkowski patent (filed Oct. 26, 1998), and the Wendelbo et al. patent (published on August 27, 1998) are not prior art with respect to claims 1, 3, 5-8, 13, 19, 21, 23, 24, and 26-29 for the reasons discussed above. Applicants therefore request that the rejections under 35 U.S.C. 103 also be withdrawn for these claims.

With regard to the remaining claims, and even if, for the sake of discussion, the subject matter of Wendelbo et al. was prior art with regard to any of the claims, applicants submit that the claims are not obvious in view of Wendelbo et al. or any of the other references cited.

Briefly, Wendelbo et al. disclose a multiautoclave for combinatorial synthesis of zeolites and other materials. Wendelbo et al. disclose two embodiments.

The first embodiment has two different configurations, one shown in Fig. 1 and the other shown in Fig. 3. Each configuration includes sealing devices (balls 4 in Fig. 1 and disks 5 in Fig. 3) which are interposed between the plates 7a, 7b and the block 2 to seal the chambers when the bottom and top plates are pressed against the block. The balls 4 may be made from Teflon or other suitable material (e.g., steel, PEEK, Nylon, or glass). As shown in Fig. 1, a thin polymer sheet 3a, 3b is interposed between the block 2 and the sealing devices for the first configuration. Thus, the balls of Fig. 1 do not have direct contact with the central block. The septa 5 of Fig. 3 are made from an elastomer, preferably Viton (page 7, lines 18-19). The balls or septa may be fastened directly on the bottom and top plates or on separate polymer films or a thin metal plate in such a way that they may be put in place and removed in a simple manner (page 7, lines 23-25). If a metal plate is used, the balls or septa are attached directly thereto (instead of being attached to the top and bottom plates 7a, 7b). It should be noted that the metal plate is provided to hold the sealing devices in place and is not involved with the sealing since it is interposed between the top or bottom plate and the sealing device. Hence, the first embodiment of Wendelbo et al. does not show chamfered ridges, a metal contact surface, or a knife-edge seal created between a sealing device and a base.

Figs. 5a and 5b show a second embodiment in which the sealing balls or disks are replaced with a polymer sheet (thin polymer film) 3a, 3b and the block 2 is machined so that sharp edges extend outwardly from the periphery of each opening. The sharp edges cut into the polymer sheet to prevent leakage between adjacent chambers. According to Wendelbo et al., as noted on page 7, cols. 32-35, "The advantage of this design is that one smooth polymer sheet can be used as a lid or sealing device for all the chambers because the sharp protrusions cut into the polymer sheet". As shown in Fig. 5b, the sharp edges extend into the polymer sheet and do not contact the bottom and top plates 7a, 7b. Hence, the second embodiment of Wendelbo et al. does not show a metal contact surface. Rather,

the sealing device of Wendelbo et al. is a thin polymer sheet, such as a gasket material, that provides a surface for the sharp edges to cut into (as shown in Fig. 5b).

Applicants' invention is particularly advantageous in that it provides for improved sealing and isolation of an array of adjacent reactor vessels at higher temperature and pressures than could be achieved with the prior art devices, including the devices described in Wendelbo et al.

The other references of record do not make up for the deficiencies of Wendelbo et al., whether considered alone and/or in various combinations. Smith is directed to a method and apparatus for releasing fluid inclusion volatiles from rock samples. Although Smith discloses sealing chambers using a knife-edge seal engaged with a copper gasket, Applicants respectfully submit that there is no suggestion to combine the teachings of Wendelbo et al. with Smith to produce the claimed invention. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Absent impermissible hindsight, it is highly unlikely that one skilled in the art of combinatorial synthesis of zeolites (Wendelbo et al.) would look to the art of rock sample analysis to find an improved method of sealing.

Even assuming, for the sake of discussion, that one would look to Smith to find an improved sealing method, this would not necessarily lead to Applicants' invention. Applicants' invention includes a sealing device or chamfered ridges which extend around a periphery of individual reaction wells to create a seal therebetween. Smith merely provides a housing which is seated against a gasket to create a seal between an internal chamber and the environment external to the housing. There is no teaching in Smith of sealing individual vessels.

The remaining references likewise do not defeat the patentability of Applicants' invention. In particular, although Koga discloses a catalyst vessel having a copper gasket, there is no disclosure of a chamfered ridge directly contacting the gasket to create a knife edge seal. Similarly, Tagge et al. disclose an array formed using microfabrication

technology which provides 8 μ l microwells, and in one embodiment, gaskets deposited as a thin film around the edges of the wells in the array by a combination of photolithography and thin film coating methods (Figs. 1 and 3). However, the gasket does not seal against a cover.

Finally, the Swierkowski patent is directed to an integrated titer plate injector head for microdrop array preparation, storage, and transfer. Although this patent discloses a body member that includes a plurality of knife-edge seals positioned around each of the well openings (Fig. 1), only a flexible membrane is in sealing contact with the knife-edge seals. Hence, Swierkowski does not show or suggest a metal contact surface used to create a knife-edge seal.

For the foregoing reasons, applicants submit that claims 1-10, 12-14, 19, 21, and 23-29 are patentable over the cited references.

VI. Conclusion:

In view of the foregoing, reconsideration and allowance of claims 1-10, 12-14, 19, 21, and 23-29 are respectfully requested. If the Examiner feels that a telephone conference would in any way expedite prosecution of the application, please do not hesitate to call the undersigned at (408) 446-8695.

Respectfully submitted,



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